

L 46716-55 EWT(1)/EWT(m)/EWA(d)/EWP(t)/EWP(k)/EWP(z)/EWP(b) PF-4/Pad IJF(c)

AP5006245

010276-64 0000/011/8085/8086

Lezda yegiva mashtenstroveniya. V. M. ...

Author: Bikeyeva, L. P.; Vozdvizhenskiy, G. S.; Gorbachuk, G. A.; Dezider'yev,

TITLE: Electrochemical machining of heat resistant alloys

CITED SOURCE: Tr. Kuybyshevsk. aviats. in-t, vyp. 18, 1963, 171-175

TOPIC TAGS: electrochemical process, metallurgy, heat resistant alloy

TRANSLATION: Results of research on electrolytic polishing of refractory alloys (tungsten, molybdenum, and iron bases) showed that this process involves an excellent surface finish and considerable improvement in reflectivity. Activation of surface reactivity of refractory alloys during anode dissolution was observed. The electron micrographs and conclusions on the electrodecrystallization mechanism of anode dissolution of refractory metals under conditions corresponding to maximum smoothing action of electrolytic polishing were confirmed. L. Romancheva

Card 1/2

L 46316-65

ACCESSION NR: AR5006245

SUB CODE: MM

ENCL: CO

Card 2/2

DEZIDER'YEV, G.P.; BEREZINA, S.I.; GORBACHUK, G.A. (Kazan')

Adsorption of hydrogen on a platinum cathode. Zhur. fiz. khim.
37 no.4:856-861 Ap '63. (MIRA 17:7)

1. Kazanskiy khimicheskiy institut AN SSSR.

SOZIN, Yu.I.; GORBACHUK, G.A.

Mechanism of oxide film formation on the surface of electrolytically polished copper. Zhur. fiz. khim. 37 no.4:888-890
Ap '63. (MIRA 17:7)

1. Kazanskiy filial khimicheskogo instituta AN SSSR.

BEREZINA, S.I.; GORBACHUK, G.A.; DEZIDER'YEV, G.P. [deceased]

Hydrogen adsorption on a nickel cathode. Elektrokhimiia 1 no.6:
719-723 Je '65. (MIRA 18:7)

1. Khimicheskii institut AN SSSR.

DEZIDKER'YEV, G.P.; GORBACHUK, G.A.; SOZIN, Yu.I. (Kazan')

Local passivation in electrolytic polishing. Zhur. fiz. khim.
39 no. 1:55-57 Ja '65 (MIRA 19:1)

1. Khimicheskiy institut imeni A. Ye. Arbuzova AN SSSR. Submitted December 10, 1963.

ACC NR: AP6036116

SOURCE CODE: UR/0365/66/002/006/0732/0736

AUTHOR: Berezina, S. I.; Gorbachuk, G. A.

ORG: AN UkrSSR, Institute of Organic and Physical Chemistry im. A. Ye. Arbuzov
(AN UkrSSR, Institut organicheskoy i fizicheskoy khimii)

TITLE: Effect of cathode hydrogen on the structure and properties of galvanic gold coatings

SOURCE: Zashchita metallov, v. 2, no. 6, 1966, 732-736

TOPIC TAGS: metal plating, gold, hydrogen

ABSTRACT: The base used was platinum and Type L-59 brass, in the form of plates 10 x 40 mm in size. Absorption of hydrogen was studied by measurements of the polarization capacity and by oscillographic curves of the anode charge. The amount of electrochemically active hydrogen in the deposit was determined from the curves for the anode charge. The structure of the gold coatings was studied by electron microscope and electronographic methods. The microhardness of the deposits was determined on a FMT-3 instrument. The composition of the solutions used for gold plating was as follows (grams/liter): I-- Au(metal)-4, KCN(free)-16, Na₃PO₄-1; II--Au(metal)-4, KCu(free)-16, Na₃PO₄-1, Ni(metal)-5. The electrolytic cell was thermostatted. Based on the experimental results, a figure shows electron microscope photos of the gold

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UDC: 621.357.7

ACC NR: AP6036116

deposits on brass, after different preliminary treatments. A further curve gives the dependence of the amount of hydrogen adsorbed on the surface of the gold coating and the yield of metal with respect to the current, as a function of the current density. In general, the results of the experiments show that the structure and the properties of gold coatings depend on the state of the base metal. Hydrogen, adsorbed by the base metal, governs the process of electrodeposition of the metal. "The authors express their thanks to G. S. Vozdvizhenskiy for his discussion of the work." Orig. art. has: 6 figures.

SUB CODE: 07, 11/ SUBM DATE: 02Mar66/ ORIG REF: 003/ OTH REF: 001

Card 2/2

GORBACHUK, M.I.

Description of the continuations of positive definite kernels.
Dokl. AN SSSR 159 no.4:719-722 D '64 (MIRA 18:1)

1. Institut matematiki AN Ukr-SSR. Predstavleno akademikom
N.N. Bogolyubovym.

GORBACHUK, M.L. (Kiyev)

Representation of positively defined operator functions. Ukr.
mat. zhur. 17 no.2:29-46 '65. (MIRA 18:5)

BEREZANSKIY, Yu.M. (Kiyev); GORBACHUK, M.L. (Kiyev)

Continuation of positively defined functions of two variables.
Ukr. mat. zhur. 17 no.5:96-102 '65.

(MIRA 18:12)

1. Submitted July 12, 1965.

GORBACHUK, M.L. (Kiyev)

Description of continuations of a positively defined operator
function. Ukr. mat. zhur. 17 no.5:102-110 '65. (MIRA 18:12)

1. Submitted June 12, 1965.

GORBACHUK, V.I. (Kiyev)

Integral representation of Hermitian indefinite kernels (case
of several variables). Ukr. mat. zhur. 16 no.2:232-236 '64.
(MIRA 17:3)

СОРБАЧЕНКО, В.І. (Київ)

Integral representation of Hermitian-indefinite nuclei. Ukr. Mat.
Zhur. 17 no.3:43-58 '65. (MIRA 18:6)

Name: GORBADEV, Nikolay Kornilovich

Dissertation: Intra-arterial injection of novocaine as a therapeutic and prophylactic method in cases of ulcer and bronchial asthma (experimental-clinical observations)

Degree: Doc Med Sci

Affiliation: [not indicated]

Defense Date, Place: 10 Feb 56, Council of Leningrad Sanitary-Hygiene Med Inst

Certification Date: 11 May 57

Source: HVO 15/57

32

APPROVED FOR RELEASE: 06/13/2000

CIA-RDP86-00513R000516030005-1

Country : USSR
CATEGORY : Pharmacology, Toxicology. Local Anesthetics

ABS. JOUR. : RZBiol., No. 12 1958, No. 56690

AUTHOR : Gorbadev, N.K.
TITLE : Treatment of Ulcer Patients and Bronchial Asthma-tics by the Method of Intrarterial Infusion of Novocaine and Penicillin

ORIG. PUB. : Tr. Leningr. San-Gigiyen. Med. In-ta, 1957, Vol. 54, 79-86

ABSTRACT : The femoral arteries were alternately infused, every day or every other day, with 30-40 ml of 0.5% preheated solution of novocaine (1). Courses of treatment included 8-10 (rarely 12-16) infusions. 171 ulcer patients and 32 patients with bronchial asthma were treated. In the majority of patients with ulcer, pain disappeared (in 159 of 169), and there was subsidence of vomiting (in 100 of 102), eructations, heartburn, nausea, and an increase in appetite, restfulness, and normalization of gastric secretions and stools. Many patients gained weight. Disappearance of the ulcer niche was seen in 50% of patients. Pa-

CARD:

COUNTRY :
CATEGORY :

ABS. JOUR. : RZBiol., No. 1958, No.

GORBADEY, Nikolay Kornilovich

[Intra-arterial transfusions of novocaine in the therapeutic clinic] Vnutriarterial'nye vlivaniia novokaina v terapevticheskoi klinike. Leningrad, Medgiz, 1959. 114 p. (MIRA 13:4)
(NOVOCAINE) (INJECTIONS, INTRA-ARTERIAL)

GORBADEY, Nikolay Kornilovich

Intraarterial Infusion of Procaine in Therapeutic Practice, by N.K. Gorbadei.
With a supplement: The Treatment of Patients With Hypertension by Intraarterial
Infusion of Procaine Solution, by I.I. Velikov. New York, Consultants Bureau,
1960.

135 p. illus., diagrs., graphs, tables. 24 cm.

Translated from the original Russian.

Bibliography: p. 106-117.

GORBADEY, N.K., doktor med.nauk; YELIZAROV, V.A., kand.med.nauk;
GOLUB, M.G.

Significance of dispensary treatment in preventing the exacerbation of hypertension; based on materials from the "Sevkabel'" factory in Leningrad. Zdrav.Ros.Feder. 6 no.9:16-19 S '62.

(MIRA 15:10)

1. Iz kafedry gigiyeny truda s klinikoy professional'nykh bolezney (zav. - prof. Ye.TS.Andreyeva-Galanina) i kafedry organizatsii zdravookhraneniya (ispolnyayushchiy obyazannosti zaveduyushchego - prof. Ye.Ya.Belitskaya) Leningradskogo sanitarno-gigiyenicheskogo meditsinskogo instituta i mediko-sanitarnoy chasti (glavnyy vrach M.G.Golub) zavoda "Sevkabel'".

(LENINGRAD--HYPERTENSION)

GORBADEY S. A.

USSR/Pharmacology, Toxicology. Local Anesthetics

V-3

Abs Jour : Ref Zhur - Biol., No 5, 1958, No 23270

Author : Gorbadey S.A.

Inst : Leningrad Sanitary-Hygienic Medical Institute

Title : An Experiment on the Treatment of Coronary Insufficiency with an Intraarterial Administration of Novocain

Orig Pub : Tr. Leningr. san.-higien. med. in-ta, 1957, 34, 171-173

Abstract : Intraarterial administrations of a freshly prepared novocain solution were carried out alternately first into the right, then into the left femoral arteries. In all, 4-10 injections were made. In seventeen out of 20 patients with complex symptoms of stenocardia the pains in the cardiac region disappeared; they were considerably diminished and became very rare in three.

Card : 1/1

ACC NR: AT7005724

SOURCE CODE: UR/2563/66/000/267/0022/0025

APPROVED FOR RELEASE: 06/13/2000

CIA-RDP86-00513R000516030005-1

AUTHORS: Gorbakov, A. A., Leschov, I. I., and others

ORG: none

TITLE: On the problem of a method of tests for the cyclical strength of heat-resisting alloys after mechanical and thermal processing

SOURCE: Leningrad. Politekhnikheskiy institut. Trudy. no. 267, 1966. Avtomatizatsiya i tekhnologiya mashinostroyeniya (Automation and technology in the machinery industry), 22-25

CYCLIC STRENGTH

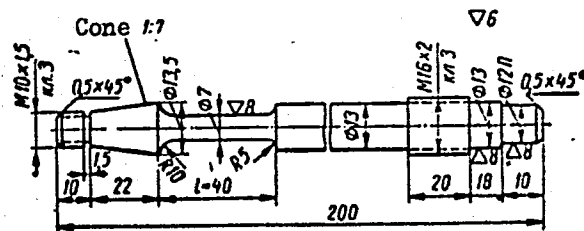
TOPIC TAGS: fatigue test, testing machine, alloy, fatigue strength, high temperature fatigue, metallurgic process/ UKT-3000 testing machine, EI867 alloy

ABSTRACT: A test method for studying the fatigue strength of heat-resistant alloys at high temperatures following mechanical-thermal processing is proposed. The method consists of first preparing the test specimens according to a specific set of instructions for thermal and mechanical processing, specimen sizing and surface polishing. Then the specimens (see Fig. 1) are fatigue-tested at high temperatures on a UKT-3000 machine, with a load variation frequency of 2900 cycles/minute. Temperature control during fatigue tests is maintained through a control panel arrangement with a potentiometer. The mechanism by which the location of fatigue failure in the specimen is controlled with the proposed method is discussed, and

Card 1/2

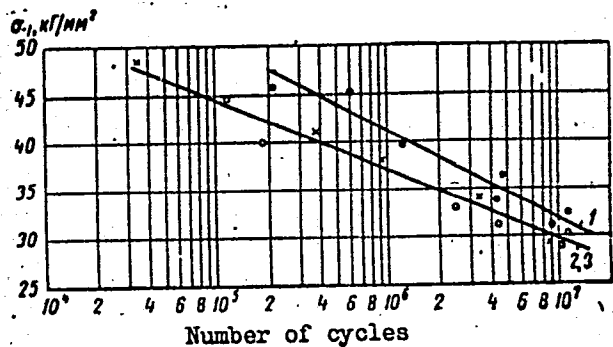
ACC NR: AT7005724

Fig. 1. Specimen for fatigue-testing at high temperature followed by mechanical-thermal processing



a drawing of the fatigue-testing machinery system is presented. The results (see Fig. 2)

Fig. 2. Cyclical strength of alloy EI867 at a temperature of 900C. 1 - After preliminary mechanical-thermal treatment; 2 - before mechanical-thermal treatment by an existing method; 3 - before mechanical-thermal treatment by the method developed



of actual fatigue tests on EI867 alloy at 900C are also discussed, with comparisons made between alternate testing methods. Orig. art. has: 4 figures.
Card 2/2 SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 006

made between alternate testing methods. Orig.
Card 2/2 SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 006

ACC NR: AT7005725

SOURCE CODE: UR/2563/66/000/267/0026/0031

AUTHORS: Gorbakon', A. A.; Lebedev, T. A.; Marinets, T. K.

ORG: none

TITLE: Possible ways for increasing the fatigue strength of heat-resistant alloys

SOURCE: Leningrad. Politekhnikheskiy institut. Trudy. no. 267, 1966. Avtomatizatsiya i tekhnologiya mashinostroyeniya (Automation and technology in the machinery industry), 26-31

TOPIC TAGS: heat resistant alloy, metal property, high temperature fatigue, fatigue strength/ EI867 heat resistant alloy, EI437B heat resistant alloy

ABSTRACT: The effects of thermomechanical treatments on the fatigue strength of heat resistant alloys EI867 and EI437B were investigated. The initial heat treatment consisted of quenching from 1220C, air cooling, aging for 8 hours at 950C, air cooling (for EI867) and quenching from 1080C, air cooling, and aging at 700C for 16 hours followed by air cooling (for EI437B). Fatigue curves for EI867 alloy after 6 different types of thermomechanical treatment are presented and compared with the untreated behavior. Fatigue curves for alloy EI437B are presented for the untreated metal and for one type of thermomechanical treatment. After a discussion of the structural effects of the treatments (sample micrographs are presented), it is concluded that thermomechanical treatment increases the fatigue strength of dispersion hardening

Card 1/2

ACC NR: AT7005725

alloys only when the plastic deformation temperature during the hot working is below the aging temperature of the alloy. Repeated thermomechanical treatment is even more effective (below the aging temperature). Orig. art. has: 7 figures, 1 table, and 1 formula.

SUB CODE: 13/ SUBM DATE: none/ ORIG REF: 009

Card 2/2

GORBAKOVSKAYA, Ye. L.

Butt, Yu. M., Krzheminskiy, S. A., and Gorbakovskaya, Ye. L. "The use of waste from potash production in the manufacture of glass", *Steklo i keramika*, 1949, Issue 5, p. 22-32.

SO: U-2888, 12 Feb. 53, (*Letopis' Zhurnal 'nykh Statey*, No. 2, 1949).

GORBALEVA, G.M.

Biological characteristics and productivity of farm crops of
sandy soils in the USSR. Trudy Biol. Inst. Sib. otd. AN SSSR
no.9:178-189 '62 (MIRA 17:8)

GORBAKOVSKIY, A.I.

We are improving public telephone and telegraph services.
Vest. svyazi 22 no.1:28-29 Ja '62. (MIRA 14:12)

1. Nachal'nik Krasnodarskoy telegrafno--telefonnoy kontory
svyazi.

(Telephone)
(Telegraph)

SAVEL'YEV, N.M.; GORBALEVA, G.M.; KLEVANSKAYA, I.L.

Role of nodules on grass roots. Izv. Sib. otd. AN SSSR no.10:124-128
'58. (MIRA 11:12)

1. Zapadno-Sibirskiy filial AN SSSR.
(Grasses) (Root tubercles)

SAVEL'YEV, N.M.; SMIRNOV, M.M.; GORBALOVA, G.N.

Utilizing old Solonets waste lands of the Baraba Lowland for grain
cultivation. Trudy Biol. inst. Zap.-Sib. fil. AN SSSR no.3:101-110
(MIRA 13:10)

(Baraba steppe--Solonets soils)

GORBALEVA, G.H.

Introduction of Bupleurum aureum. Trudy TSSBS no.7:52-55 '64.
(MIRA 17:11)

GORBAN' - A.I.
USSR/Medicine - Roentgenology

FD-696

Card 1/1 : Pub 132 6/22

Author : Gorban', A. I., Candidate Medical Sciences

Title : ~~The reflex characteristics in hypertension of the eye brought about by X-ray irradiation~~

Periodical : Vest. Rent. i Rad. 30-34, May/June 1954

Abstract : After irradiation by X-rays, hypertension in the eye occurs as a reflex mechanism. There is an increase in the amount of blood in the eyeball, i. e. its hyperemia. The reflex character of this hypertension indirectly confirms the presence of chemoreceptors connected with the central nervous system in the membrane of the eye. This should be noted when studying the action of various medications on the internal pressure of the eye. Three graphs; one table. No references.

Institution : Military-Medical Academy imeni S. M. Kirov

Submitted : --

GORBAN, A. I.

✓ Determination of the concentration of fluorescein in the
eyeball fluid without its extraction (bicolorimetry). B. L.
Polyak and A. I. Gorban (S. M. Elroy Military Med.
Acad., Moscow). ~~Vopr. Ophthalmol.~~ 34, No. 4, 21-2 (1965).
—The concn. of the dye in the eye is detd. by direct visual
comparison of the color with that of a set of standards
mounted in a convenient holder which can be placed in the
proximity of the organ, the necessary light being focused
by a hand-lens. G. M. Kosolapoff (1)

GORBAN AI.

✓ Experimental biocolorimetric studies. A. I. Gorbunov
(S. M. Kirov Military Med. Acad., Moscow). *Vestnik
Oftalmol.*, 34, No. 4, 23-5(1955).—The method described
in the preceding abstr. was employed satisfactorily for
following the appearance of fluorescein in the eye fluid after
injection into the ear of the exptl. animal (rabbit). X-
radiation causes a greater permeability of the eye structures
to fluorescein. G. M. Kosolapoff

~~GORBAN', A.I.~~ kandidat meditsinskikh nauk

A portable headrest for X-ray location of foreign bodies in the eye.
Vest.rent. i rad. 31 no.4:65-70 JI-Ag '56. (MLRA 9:10)

1. Iz kafedry oftalmologii (nach. - prof. B.L.Polyak) Voenno-meditsinskoy ordena Lenina akademii imeni S.M.Kirova.

(EYE, foreign bodies

localization with x-ray, use of special device)

(ROENTGENOGRAPHY, appar. and instruments

device for localization of for. bodies in eye with

X-ray)

GORBAN', A.I., kand.med.nauk

Comparative rating of the Comberg-Baltin method and some of its
variants. Oft.zhur. 13 no.1:7-12 '58. (MIRA 11:4)

1. Iz kafedroy oftalmologii (nach.-prof. B.L.Polynk) Voenno-
meditsinskoy ordena Lenina akademii im. S.M.Kirova.
(EYE--RADIOGRAPHY)

GORBAN', A.I., kand. med. nauk.

Tweezer for extracting nonmagnetic splinters from the vitreous humors.
Oft. zhur. 13 no.6:333-334 '58. (MIRA 12:1)

1. Iz kafedry oftal'mologii (nach.-prof. B.L. Polyak) Voenno-meditsinskoy
ordena Lenina akademii imeni S.M. Kirova.
(EYE, INSTRUMENTS AND APPARATUS FOR)

GORBEN', A.I., kand.med.nauk

Roentgenological determination of mobility of intraocular foreign
bodies [with summary in English]. Vest.rentg. 1 rad. 33 no.1:50-55
Ja-P '58. (MIRA 11:4)

1. Iz kafedry oftal'mologii (nach.-prof. B.L. Polyak) Voenno-
meditsinskoy ordena Lenina akademii imeni S.M.Kirova.

(NIB, for.body
mobility, x-ray determ. (Rus)

GORBAN', A.I., kand. med. nauk

New method for analyzing a general frontal X ray photograph of the orbit. Oft. zhur. 14 no.1:33-36 '59. (MIRA 12:6)

1. Kafedra oftal'mologii (nach- prof. B. L. Polyak) Voenno-meditsinskoy ordena Lenina akademii im. S.M. Kirova.
(ORBIT(NTL)--RADIOGRAPHY)

VOLKOV, V.V., kand.meditsinskikh nauk; GORBAN', A.I., kand.meditsinskikh nauk; ZAV'YALOV, I.A., vrach; ZAKHAROV, V.A., vrach

Some proposals concerning the technic of plastic dacryocystorhinostomy.
Oft. zhur. 15 no.5:278-280 '60. (MIRA 13:9)

1. Iz kafedry oftal'mologii (nachal'nik - prof. B.L. Polyak)
Voyenno-meditsinskoy ordena Lenina akademii im. S.M. Kirova.
(DACRYOCYSTORHINOSTOMY)

GORBAN', A.I., starshiy nauchnyy sotrudnik; IGNAT'YEV, A.N., vrach

Proper construction of a campimeter. Oft. zhur. 16 no.8:464-467
'61. (MIRA 15:4)

1. Iz kafedry oftal'mologii (nachal'nik kafedry - prof. B.L.Polyak)
Voyenno-meditsinskoy ordena Lenina akademii imeni S.M.Kirova.
(EYE, INSTRUMENTS AND APPARATUS FOR)

POLYAK, B. L., prof.; GORBAN', A. I.

Method of biomicroscopic examination of the eye. Vest. oft.
no.2:18-24 '62. (MIRA 15:4)

(OPHTHALMOSCOPY)

GORBAN', A.I., starshiy nauchnyy sotrudnik; DZHALLASHVILI, O.A., kand. med. nauk

Removal of intraocular magnetic foreign bodies located in a poorly accessible area. Oft. zhur. 18 no.7:399-403 '63
(MIRA 17:4)

1. Iz kafedry oftal'mologii Voenno-meditsinskoy ordena Lenina akademii imeni Kirova.

GORBAN, A. K.

USSR/Chemistry - Vinyl Ethers
Chemistry - Chlorohydrins

Mar/Apr 49

"Interaction of Vinylalkyl Ethers and Halohydrins," M. F. Shostakovskiy,
N. A. Gershteyn, A.K.Gorban, Inst of Org Chem, Acad Sci USSR, 3 pp

"IZ Ak Nauk, SSSR, Otdel Khim Nauk" No 2

Studies reaction of vinylethyl and vinylbutyl ethers with ethylene
chlorohydrin. Chlorine derivatives of the corresponding acetals
were obtained. Submitted 16 Apr 48.

PA 43/49T29

GORBAN, A.K.

USSR.

Acetaldehyde, *n*-butyl acetal, A. K. Gorban.
Dopovidi Akad. Nauk Ukr. R.S.R. 1952, 24-3, et. Mos-
takovsky, Gershtein, and Gorban, C.A. 43, 6150c; S. L.
Chekunova, and G., C.A. 47, 9311g. Acetals obtained
from HOCH₂CH₂Cl and CH₃CHOR are described, where
R = Me, Pr, iso-Pr, iso-Bu and iso-Am. For MeCH-
(OR)CH₂CH₂Cl, R, b.p./mm., d_4^{20} and n_D^{20} are: Me, 52-
3°/10, 1.0541, 1.4111; Pr, 55-7°/0, 0.9909, 1.4255; iso-
Pr, 41.5-41°/2, 0.9045, 1.4218; iso-Bu, 68-0°/7, 0.9790,
1.4246; iso-Am, 61-3°/1.5, 0.9672, 1.4312. M. Dyanicky

(5)

Jan

GORBAN', A.K.

HORBAN', A.K.; KIPRIANOV, A.I., diysnyy chlen.

Action of an alcoholic solution of alkali on β -chloroethyl acetals of acetaldehydes. Dop. AN URSR no.3:205-207 '52. (MIRA 6:9)

1. Akademiya nauk Ukrayins'koyi RSR (for Kiprianov).

(Acetals)

GORBAN', A.K.

GORBAN', A.K.

Reactions for the addition of ethyleneglycol to vinylalkyl
ethers. Ukr.khim.shur. 20 no.6:670-674 '54. (MLRA 8:3)

1. Prechistenskiy spirtovoy zavod, Gshatskiy r., Smolenskiy obl.
(Chlorohydrin)(Acetals)

GORBAN', A.K.

GORBAN', A.K.

Alkyl- β -ethoxyethylacetals and β, β' -diethoxydiethylacetal. Ukr.
khim.shur. 20 no.6:675-677 '54. (MIRA 8:3)

1. Prechistenskiy spirtovoy zavod, Gzhatskiy r., Smolenskiy obl.
(Acetals)

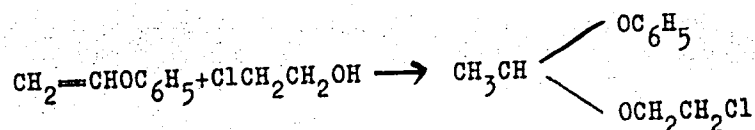
AUTHORS: Shostakovskiy, M. F., Kulibekov, M. R., SOV/79-28-10-43/60
Gorban', A. K.

TITLE: Synthesis of β -Chlorethyl-Phenyl Acetal (Sintez β -khlor-etilfenilatsetalya)

PERIODICAL: Zhurnal obshchey khimii, 1958, Vol 28, Nr 10,
pp 2838 - 2838 (USSR)

ABSTRACT: In previous papers (Ref 1), M.F.Shostakovskiy and his collaborators investigated the reaction of vinyl alkyl ether with ethylene chlorohydrin, as well as some chemical properties of the β -chloro-ethyl-alkyl acetals synthesized in this process. In the paper under discussion, the attachment reaction of ethylene chlorohydrin with vinylaryl ethers, starting with vinyl phenyl ether, is carried out:

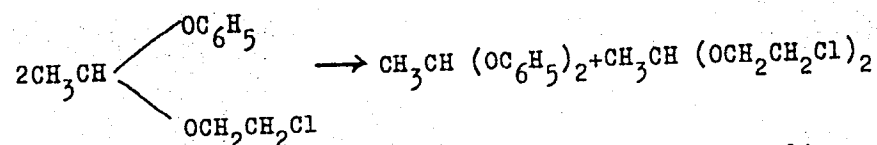
Card 1/2



Synthesis of β -Chlorethyl-Phenyl Acetal

SOV/79-28-10-43/60

On a closer study of this reaction it turned out that besides the formation of β -chloro-ethyl-phenyl acetal, its disproportionation into diphenyl acetal and β,β -dichloro-diethyl acetal occurs according to the pattern:



An analogous phenomenon could be observed on an earlier occasion in the investigation of the β -chloro-ethyl-alkyl acetals (Ref 1). This is the first time that a description of the β -chloro-ethyl-phenyl acetal is given. There are 2 references, 2 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii Akademii nauk SSSR (Institute of Organic Chemistry at the AS USSR)

SUBMITTED: July 29, 1957
Card 2/2

AUTHORS: Shostakovskiy, M. F., Kulibekov, M. R., SOV/79-28-10-44/60
Gorban', A. K.

TITLE: Synthesis of γ, γ' -Diphenyl-Dipropyl Acetal (Sintez γ, γ' -
~~difenildipropilatastalya~~)

PERIODICAL: Zhurnal obshchey khimii, 1958, Vol 28, Nr 10,
pp 2839 - 2839 (USSR)

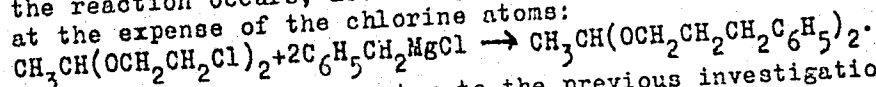
ABSTRACT: In previous papers, Shostakovskiy (Ref 1) suggested a method for the synthesis of acetals of a great variety of structures, and investigated some chemical properties of these compounds. The paper under discussion served the purpose of a closer investigation of the reactions of β, β' -dichloro-diethyl acetal with Grignard's reagent. Starting from the fact that this acetal constitutes at the same time an acetal and a halogen derivative, the authors could expect that it would react either as a halogen alkyl, or, according to the Chichibabin-Yelgazin reaction pattern, at the C-O bond (Ref 2). As a result of the investigation of this reaction,

Card 1/2

Synthesis of γ,γ' -Diphenyl-Dipropyl Acetal

SOV/79-28-10-44/60

starting with the reaction of magnesium chlorobenzyl with β,β' -dichloro diethyl acetal, it was shown that the reaction occurs, according to the following pattern, at the expense of the chlorine atoms:



This experience runs counter to the previous investigations by the same authors (Ref 3), according to which the reaction of Grignard's reagent with symmetric and mixed acetals not containing a halogen in the alcohol radicals occurs at the C-O bond. There are 4 references, 4 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii Akademii nauk SSSR (Institute of Organic Chemistry at the AS USSR)

SUBMITTED: July 29, 1957
Card 2/2

5(3)
AUTHORS: Khomenko, A. Kh., Gorban', A. K. SOV/62-59-9-30/40

TITLE: Synthesis of Butyl Ethinylvinyl Ether and Tetrolaldehyde Dibutyl Acetal by Reaction of Sodium Butylate With 1,4-Dichlorobutene-2

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1959, Nr 9, pp 1676-1677 (USSR)

ABSTRACT: Together with Shostakovskiy the authors developed a method for the preparation of methyl ethinylvinyl ether by the treatment of 1,4-dichlorobutene with a KOH-methanol solution, described in a previous paper (Ref 1). By the same method butyl ethinylvinyl ether was now prepared, using sodium butylate and 1,4-dichlorobutene-2. The reaction proceeds at 90-95° and is completed within 1 hr. On further heating another butanol molecule adds on, giving tetrolaldehyde dibutyl acetal. The reactions are described in the experimental part of the paper. There are 7 references, 4 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences, USSR)

SUBMITTED: February 25, 1959
Card 1/1

GORBAN', A.K.

β -Allylhydroxyethyl-n-butylacetal acetaldehyde. Izv. AN SSSR.
Otd.khim.nauk no.10:1889-1890 0 '61. (MIRA 14:10)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Acetaldehyde)

SHOSTAKOVSKIY, M.F.; DENISENKO, V.P.; GORBAN', A.K.

Synthesis of hexamethylenediamine biquaternary ammonium salts.
Izv.AN SSSR.Otd.khim.nauk no.10:1907-1908 O '61. (MIRA 14:10)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Ammonium compounds) (Hexanediamine)

84867

53700 only 2209, 1273

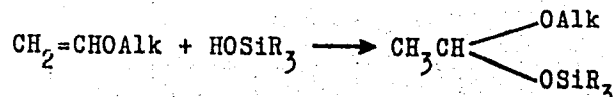
S/079/60/030/010/003/030
B001/B075

AUTHORS: Shostakovskiy, M. F., Kondrat'yev, Kh. I., and Gorban', A.K.

TITLE: Investigation in the Field of Synthesis and Conversions of Oxygen-containing Organosilicon Compounds. IX. Synthesis of Organosilicon and Naphthyl-containing Acetals

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 10, pp. 3183-3186

TEXT: In Ref. 1 the authors showed that the reaction of vinyl alkyl ether with silanols led to the formation of mixed trialkyl silyl alkyl acetals:



The subject of the present paper is the reaction of vinylethyl, vinylisopropyl, and vinyl-n-butyl ethers with α -naphthyl dimethyl silanol (I). Compound (I) was obtained by hydrolyzing the acetic acid ester of α -naphthyl dimethyl silanol. Shostakovskiy and his collaborators (Ref. 1) have found that, due to an ionic mechanism, vinyl alkyl ether reacted

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84867

Investigation in the Field of Synthesis S/079/60/030/010/003/030
and Conversions of Oxygen-containing Organo- B001/B075
silicon Compounds. IX. Synthesis of
Organosilicon and Naphthyl-containing Acetals

easily with silanols in the presence of traces of mineral acids. However, organosilicon acetals were found to be formed even without a catalyst. In this case, the yield is very high, whereas in the presence of acids (Refs. 1, 2) side reactions take place, such as hydrolysis, dimerization of the silanols, and polymerization of the initial vinyl ether. The structure of the acetals obtained was proved by hydrolyzing them with 2% sulfuric acid under the formation of α -naphthyl dimethyl silanol, acetaldehyde, and the corresponding alcohol. The α -naphthyl dimethyl silyl alkyl acetals (II) are colorless, very mobile liquids which are soluble in ordinary organic solvents but insoluble in water. There are 1 table and 2 Soviet references.

ASSOCIATION: Institut organicheskoy khimii Akademii nauk SSSR
(Institute of Organic Chemistry of the Academy of Sciences
USSR)

SUBMITTED: December 14, 1959

Card 2/2

GORBAN', A.K.; KULIBEKOV, M.R.; SHOSTAKOVSKIY, S.M.

Method of synthesizing vinyl alkyl acetals by dehydrochlorination
of α -chloroethyl alkyl acetals. Izv. AN SSSR. Otd.khim. nauk no.4:754-755
Ap 63. (MIRA 16:3)

1. - Irkutskiy institut organicheskoy khimii Sibirskogo otdeleniya
AN SSSR.

(Acetals)

KULIBEKOV, M.R.; GORBAN, A.K.

Synthesis of 7,8-diphenyl-1,4-dioxane acetal. Izv. AN SSSR. Otd.khim. nauk
no.4:763-764, p 63. (MIRA 16:3)

1. Irkutskiy institut organicheskoy khimii Sibirskogo otdeleniya AN
SSSR.

(Acetals)

LOPUSHANSKIY, A.I.; GORBAN', A.K.; UDOVITSKAYA, V.V.

Synthesis of quaternary ammonium derivatives of L-menthol. Izv.
AN SSSR. Otd.khim.nauk no.6:1141-1142 Je '63. (MIRA 16:7)

1. Institut organicheskoy khimii imeni N.D.Zelinskogo AN SSSR.
(Menthol) (Ammonium compounds)

ACCESSION NR: AP3009837

S/0062/63/000/007/1333/1334

AUTHOR: Gorban', A. K.

TITLE: Tetramethyldi-n-propyldisiliconamine and n-propyldimethylsilanol.

SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 7, 1963, 1333-1334.

TOPIC TAGS: tetramethyldi-n-propyldisiliconamine, n-propyldimethylsilanol, n-propylmagnesium bromide, dimethyldichlorsilane, NH sub 3.

ABSTRACT: An earlier paper referred to the synthesis of Alpha-naphthyl-containing organo-silicon compounds (M. F. Shostakovskiy, Kh. I. Kondrat'ev and A. K. Gorban', Zh. obshch. Khimii 30, 1960, 3183). The present work concerns syntheses and description of similar compounds. Reaction of n-propyl-magnesium bromide with dimethyldichlorsilane gave n-propyldimethylchlorsilane; the latter's reaction with NH₃ yielded tetramethyldi-n-propyldisiliconamine, which, upon hydrolysis, gave n-propyldimethylsilanol. Yields were 84 and 79% for the two end products. Orig. art. has: 3 formulas.

ASSOCIATION: Institut organicheskoy khimii AN SSSR im. N. D. Zelinskogo (Institute of organic chemistry, AN SSSR)

Card

1/

SHOSTAKOVSKIY, M.F.; KULIBEKOV, M.R.; GORBAN', A.K.; SHOSTAKOVSKIY,
S.M.

Synthesis of organomagnesium compounds in a medium of formals.
Zhur. ob. khim. 34 no. 3:760-762 Mr '64. (MIRA 17:6)

1. Irkutskiy institut organicheskoy khimii Sibirskogo otdeleniya
AN SSSR i Azerbaydzhanskiy sel'skokhozyaystvennyy institut.

LOPUSHANSKIY, A.I.; GORBAN', A.K.; UDOVITSKAYA, V.V.

Synthesis of biquaternary ammonium derivatives of decamethylenediamine. Izv. AN SSSR. Ser. khim. no.6:1106-1108 Je '64.
(MIRA 17:11)

1. Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR.

GORBAN', A.K.

Di-n-butyl acetal of bromoacetaldehyde. Izv. AN SSSR. Ser. khim. no. 9:
1709-1711 S '64. (MIRA 17:10)

1. Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR.

GORBAN', A.K.

Infrared spectra of alkyl vinyl acetals. Izv. AN SSSR. Ser. khim. no. 9:
1721-1722 S '64. (MIRA 17:10)

1. Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR.

SHOSTAKOVSKIY, M.F.; KULIBEKOV, M.R.; GORBAN', A.K.

New method of synthesizing sulfides based on exchange reactions
between mercaptals and organomagnesium compounds. Zhur. ob. khim.
34 no.9:2837-2839 S '64. (MIRA 17:11)

1. Institut organicheskoy khimii AN SSSR i Irkutskiy institut
organicheskoy khimii Sibirskogo otdeleniya AN SSSR.

L 4497-66 EWT(1)/EWA(h)

ACC NR: AP5023274

UR/0302/65/000/003/0035/0037
534 232.45

AUTHOR: Gorban', A.M.; Gridin, G.K.; Dodonova, G.M.; Onishchenko, E.L.; Sirotyan, V.G.; Ferenets, N.K.; Kholmakaya, Ye. V.; Shikalov, V.S.; Bukhomlinov, M.M.
(Candidate of Technical Sciences)

TITLE: Magnetostriction delay lines 25

SOURCE: Avtomatika i priborostroyeniye, no. 3, 1965, 35-37

TOPIC TAGS: magnetostriction, circuit delay line, ferromagnetic material, delay circuit

ABSTRACT: Magnetostriction delay lines are based on the fact that ferromagnetic materials transmit ultrasound with a speed which is lower than the speed of electrical signals through conventional circuits. The Institut avtomatiki Gosudarstvennogo komiteta po priborostroyeniyu, sredstvav avtomatizatsii i sistemam upravleniya pri Gosplane SSSR (Institute of Automation, State Committee for the Design of Instruments, Means of Automation, and Control Systems attached to Gosplan SSSR) developed three such delay lines with delay times of 80, 640, and 2560 μ sec, respectively. The block diagram of the devices is shown in Fig. 1 of the Enclosure. The sound conductor is made of an "N-1, hard" nickel alloy wire 0.7 mm in diameter. Its Young's modulus is about 21,000 — 23,000 kg/mm², specific density is 8.9 g/cm³, ultrasound velocity is 4,750 — 5,050 μ sec, and the temperature coefficient of delay is $1.4 \cdot 10^{-4}$ per °C. The article presents the pertinent circuit diagrams and a detailed description of the delay line operation. Orig. art. has: 1 formula and 4 figures.

Card 1/3

L 4497-66

ACC NR: AP5023274

ASSOCIATION: none

SUBMITTED: 00

ENCL: 01

SUB CODE: EC, IE

NO REF SOV: 002

OTHER: 000

Card 2/3

L 4497-66

ACC NR: AP5023274

ENCLOSURE: 01

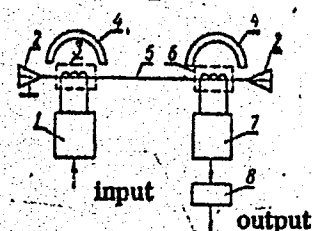


Figure 1. Block diagram of the magnetostriction delay line = 1 - Input signal shaper;
2 - muffler; 3 - transmitter magnetostriction converter; 4 - permanent magnets;
5 - sound duct; 6 - receiver magnetostriction converter; 7 - output signal amplifier;
8 - pulse spreader.

PC
Card 3/3

0046

GORBAN', A.M.; FERENETS, N.K.

Temperature regulators using transistor components. Avtom. i
prib. no.3:69-71 J1-S '64. (MIRA 18:3)

9797-66 EWT(1)/EWA(h) GG

ACC NR: AP5028509

SOURCE CODE: UR/0286/65/000/020/0095/0095

AUTHORS: Sukhomlinov, M. M.; Pelipenko, M. I.; Ferenets, M. K.; Onishchenko, E. L.; Shikalov, V. S.; Gorban', A. M.; Sirotan, V. G.

ORG: none

TITLE: A memory device with magnetostrictive delay lines. Class 42, No. 175740
announced by Institute of Automation of the State Committee on Instrument Manufacture and Means of Automation and Control Systems of Gosplan, SSSR (Institut avtomatiki gosudarstvennogo komiteta po priborostroyeniye i sredstvav avtomatiki i sistemam upravleniya pri gosplane SSSR)

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 20, 1965, 95

TOPIC TAGS: electromagnetic memory, circuit delay line, storage device

ABSTRACT: This Author Certificate presents a memory device using magnetostrictive delay lines. The device contains input and output converters, regeneration circuits, and a synchronizing generator. In order to increase reliability, one of the digital columns of the device is used as the synchronizer. Its regeneration circuit has two input converters spaced at a distance equal to a prime wavelength number (excluding two) (see Fig. 1). The distance between the input and output converters is not a multiple of the distance between the input converters.

Card 1/2

UDC: 681.142:621.374.5

GORBAN', A. N.

AUTHORS: Sokolov, V. A., Grozina, I. S. and Gorbani', A. N. 51-1-17/18

TITLE: On "Candoluminescence" of CaO and Al₂O₃. (K voprosu o kandolyuminesentsii CaO i Al₂O₃).

PERIODICAL: Optika i Spektroskopiya, 1957, Vol.III, Nr.1, pp.92-94. (USSR)

ABSTRACT: CaO and Al₂O₃ emit strongly in flames ("candoluminescence") due to oxidising and reducing reactions in chemically active regions of a flame. Some workers (Ref.2) regard this emission as of purely thermal origin. The present authors obtained spectra of CaO and Al₂O₃ emitting in town-gas flames and spectra of oxidation of Ca and Al by burning of metals in oxygen in front of a spectrograph slit. These spectra are shown in Figs.1 and 2. The results obtained, together with a comparison of emission of CaO and Al₂O₃ with that of a black body, establish that "candoluminescence" is of purely thermal character and obeys Kirchoff's law. The effect has nothing to do with true luminescence in the region of temperatures studied (above 600°C). There are 4 figures and 3 references, 1 of which is Slavic.

Card 1/2

On "Candoluminescence" of CaO and Al_2O_3 .

51-1-17/18

SUBMITTED: February 15, 1957.

AVAILABLE:

Card 2/2

SOKOLOV, V.A.; GROZINA, I.S.; GORBAN', A.N.

Nature of cathodoluminescence of calcium oxide. Izv. TPI 95:
253-256 '58. (MIRA 14:9)

1. Predstavleno professorom doktorom A.A.Vorob'yevym.
(Luminescence) (Calcium oxide)

SOKOLOV, V.A.; GORBAN', A.N.

Nature of the catholuminescence of Al_2O_3 . Izv. TPI 95:257-259
'58. (MIRA 14:9)

1. Predstavleno professorom doktorom A.A.Vorob'yevym.
(Alumina) (Luminescence)

SOV/51-5-6-18/19

AUTHORS: Gorban', A.N. and Sokolov, V.A.

TITLE: On the Nature of "Drummond's Light" (K voprosu o prirode "Drummondova sveta")

PERIODICAL: Optika i Spektroskopiya, 1958, Vol 5, Nr 6, p 713 (USSR)

ABSTRACT: "Drummond's light" is the very bright emission by CaO when excited by flames. The authors showed that at high temperatures (above 600°C) the emission of CaO in flames follows Kirchhoff's law and is not due to candoluminescence (Ref 2). The possibility of candoluminescence cannot be excluded at temperatures below the temperature of quenching of luminescence. The method of investigation was the same as that described in Ref 3. A sample of natural CaO was used in the form of a powder layer on the curved surface of a cylinder filled with a cooling mixture. It was found that CaO when touched by a Bunsen burner flame (with the cylinder rotating slowly) produces bright luminescence whose spectrum was recorded with an IKS-53 spectrograph. The authors also obtained the cathodoluminescence spectrum (under electron bombardment) of CaO. A figure on p 713 shows that the candoluminescence curve 1 and cathodoluminescence (curve 2) spectra are identical in

Card 1/2

SOV/51-5-6-18/19

On the Nature of "Drummond's Light"

the distribution of their bands and band maximum. It was found that luminescence under the action of flames appears most clearly at 400-450° C and is quenched completely at 600-650° C. Cathodoluminescence and photoluminescence are also quenched completely at 600-650° C. The figure also shows the normal heat radiation spectrum (curve 3) produced by heating in flames at temperatures above 650° C. Spectral analysis of CaO indicated the presence of small amounts of Ag, Cu and Mn, which are responsible for the bands in curves 1 and 2. There are 1 figure and 3 references, 2 of which are Soviet and 1 English.

SUBMITTED: July 2, 1958

Card 2/2

SOV/51-7-2-22/34

AUTHORS: Gorban', A.M. and Sokolov, V.A.

TITLE: On the Problem of the Physico-Chemical Nature of Candoluminescence
(K voprosu o fiziko-khimicheskoy prirode kandolyuminesentsii)

PERIODICAL: Optika i spektroskopiya, 1959, Vol 7, Nr 2, pp 259-261 (USSR)

ABSTRACT: Sokolov (Ref 1) reported observations of true candoluminescence (luminescence due to the action of flames). He suggested that one of the main causes of such luminescence is absorption by the phosphor of energy liberated in recombination on the phosphor surface, of atoms and radicals into molecules. This suggestion has been confirmed by the following experiment. Recombination of atoms and radicals occurs readily on metal (e.g. Pt, V, Cu) surfaces as well as on surfaces of oxides of metals in the groups II and III of the periodic table. If candoluminescence is mainly due to recombinations on the phosphor surface, then introduction of a metal grid into flame together with a phosphor should depress the latter's luminescence, because the majority of recombinations would then occur on the metal grid. It was found that a copper grid placed in a Bunsen flame in such a way as to make the flame pass through the grid before reaching the phosphor (see figure on p 260) weakens candoluminescence of the phosphor very considerably. The authors determined

Card 1/2

SOV/51-7-2-22/34

On the Problem of the Physico-Chemical Nature of Candeluminescence

also the amount of atomic hydrogen and of radicals in the Bunsen flame as well as recombination coefficients of atoms and radicals on ZnS.CdS-Cu and CaO (lime). This was done by means of a thermoelectric probe method described earlier (Ref 3). It was found that the ratio of the pressure of atomic hydrogen and radicals to the total gas pressure was 0.225 and that the recombination coefficients on ZnS.CdS-Cu and CaO surfaces were 0.33-0.4 and 1.0 respectively. There are 1 figure, and 5 references, 4 of which are Soviet and 1 German.

SUBMITTED: January 26, 1959

Card 2/2

SOV/51-7-4-24/32

AUTHORS: Gorban', A.N. and Sokolov, V.A.

TITLE: Candoluminescence and Emission Due to Recombination on the Phosphor Surface in an Active-Gas Atmosphere

PERIODICAL: Optika i spektroskopiya, 1959, Vol 7, Nr 4, p 569 (USSR)

ABSTRACT: In an earlier paper (Ref 1) the authors showed experimentally that one of the main causes of candoluminescence (luminescence in flames) is absorption of energy liberated due to recombination of atoms and radicals on the phosphor surface. The present note describes a further experiment which confirms this hypothesis. Town gas was activated (production of atoms and radicals) by an electric discharge in a specially constructed tube (Fig 1). When this gas came into contact with a layer of ZnS,CdS-Cu phosphor the latter luminesced and the emission spectrum obtained under these conditions (Fig 2, curve 2) was identical with the candoluminescence spectrum (Fig 2, curve 1). There are 2 figures and 1 Soviet reference.

SUBMITTED: April 11, 1959

Card 1/1

AUTHORS: Gorban', A.N. and Sokolov, V.A.

SOV/51-7-6-19/38

TITLE: On the Semiconducting Mechanism of Surface-Recombination Luminescence²¹

PERIODICAL: Optika i spektroskopiya, 1959, Vol 7, No 6, pp 815-817 (USSR)

ABSTRACT: V.A. Sokolov (Ref 1) suggested that candoluminescence²¹ (luminescence in flames) is due to recombination on the phosphor surface of atoms and radicals, present in the flame, into molecules. An experimental proof of this hypothesis was given later (Ref 2). In the present note the authors apply to candoluminescence the ideas of Vol'kenshteyn, Voyevodskiy and Semenov (Refs 3-6) on the relationship between recombination of atoms and radicals on the surface of a solid and semiconducting properties of the latter. To illustrate these ideas the authors discuss recombination of atomic hydrogen and find that recombination which produces candoluminescence is satisfactorily explained by the energy band theory of solids. There are 1 figure and 7 Soviet references. ✓

SUBMITTED: April 11, 1959

Card 1/1

14(5)

AUTHORS:

SOV/20-126-2-32/64
Melik-Gaykazyan, V. I., Baychenko, A. A., Rabotkin, V. L.,
Gorban', A. N.

TITLE:

Investigation of the Mechanism of the Action of Non-Polar
Reagents in the Flotation of Coal (Issledovaniye mekhanizma
deystviya nepolyarnykh reagentov pri flotatsii uglya)

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 126, Nr 2,
pp 341 - 343 (USSR)

ABSTRACT:

One must not generalize the methods which serve for the
estimation of the reagents distribution on the surface of
mineral particles. There are two possibilities: a) The
reagents chemically interact with the surfaces and are ab-
sorbed as single molecules, b) the reagents are deposited as
drops - this happens on coal particles. The rules pertaining
to case a) must not be applied to case b). This is explained by
the fact that the drops of non-polar flotation reagents are
less firmly fixed on the surface of non-polar particles. For
many reasons the tests of other researchers (Refs 1-5), are
not very convincing in their applicability to small coal.
Therefore the authors have agreed to use the luminescent pro-

Card 1/2

Investigation of the Mechanism of the Action of
Non-Polar Reagents in the Flotation of Coal

SOV/20-126-2-32/64

perties of petroleum to estimate the distribution of the reagent on coal-particles. Figure 1 shows micro-pictures of particles, which lie 3-5 mm under the water-surface. By contrasting the micro-pictures a and b (Fig 1) it becomes obvious that petroleum in strong concentrations is in visual light practically undetectable under water (Fig 2). The formation mechanism of a "hem" around a particle is explained. Figure 1 b-d shows pictures taken with ultra-violet light with and without a small infusion of visual light (Fig 1 g). From the results obtained, the authors conclude that by the use of luminescence a few details on the distribution of a non-polar reagent on the surface of coal particles, under the reaction of outside influences may relatively simply be observed. Moreover the conditions governing this case have a very close connection to those met with in flotation. There are 2 figures and 7 references, 6 of which are Soviet.

ASSOCIATION: Tomskiy politekhnicheskii institut (Tomsk Polytechnic Institute)
PRESENTED: February 2, 1959, by P. A. Rebinder, Academician
SUBMITTED: January 29, 1959
Card 2/2

L 18992-63 EPF(c)/EWT(1)/EWP(q)/EWT(m)/BDS AFFTC/ASD/ESD-3/
IJP(C) Pr-4 GG/RM/WW/JD/MAY/JFW/JG

ACCESSION NR: AT3002452

S/2935/62/000/000/0179/0192 74
73

AUTHOR: Vol'kenshteyn, F. F.; Gorban', A. N.; Sokolov, V. A.

TITLE: Processes of recombination of free radicals on a semiconductor surface
and their role in luminescence [Conference on Surface Properties of Semiconductors,
Institute of Electrochemistry, AN SSSR, Moscow, 5-6 June, 1961]

SOURCE: Poverkhnostnyye svoystva poluprovodnikov. Moscow, Izd-vo AN SSSR,
1962, 179-192

TOPIC TAGS: semiconductor, semiconductor-surface characteristics,
luminescence, surface recombination

ABSTRACT: On the basis of the electronic theory of chemosorption and catalysis,
the radical-recombination mechanism of luminescence is examined, as well as
some consequences ensuing from that mechanism. A theoretical and experimen-
tal investigation is reported of the effect of an external transverse electric field
upon the intensity of candoluminescence. Luminescence is considered as
Card 1/2

L 18992-63

ACCESSION NR: AT3002452

consisting of two steps: ionization and neutralization of an activator atom; the accompanying phenomena are explained and pictorially represented. A new formula describing the intensity of luminescence is developed, and the effect of the Fermi level on the intensity is investigated. The effect of the electric field on candoluminescence was studied in a special device on a $ZnS \cdot CdS$ copper-activated phosphor placed in a low-temperature lighting-gas flame. Potentials -2kv and +2kv were applied to the electrodes producing the electric field in the phosphor zone, and the variation in the luminescence intensity was measured. The experiments are interpreted as corroborating the probability of the radical-recombination mechanism. Orig. art. has: 7 figures and 26 formulas.

ASSOCIATION: Institut khimicheskoy fiziki AN SSSR (Institute of Chemical Physics, AN SSSR); Institut fizicheskoy khimii AN SSSR (Institute of Physical Chemistry, AN SSSR)

SUBMITTED: 00

DATE ACQ: 15May63

ENCL: 00

SUB CODE: PH

NO REF SOV: 009

OTHER: 002

Card 2/2

GORBAN', A. N., Candidate of Phys-Math Sci -- (diss) "On the Question of the Physico-Chemical Nature of Candle-luminescence." Tomsk, 1960. (Tomsk State Univ im V.V. Kuybyshev); 180 copies; price not given. (KL, 28-60, 157)

SOKOLOV, V.A.; GORBAN', A.N.; NAZIMOVA, N.A.

"Selectivity" of the thermal radiation of CaO and MgO.
Opt. i spektr. 11 no.2:273-274 Ag '61. (MIRA 14:8)
(Calcium oxide) (Magnesium oxide)
(Radiation)

20853

S/048/61/025/003/042/047
B104/B203

24.3500 1160, 1155, 1395

AUTHORS: Sokolov, V. A. and Gorban', A. N.

TITLE: Radical recombination luminescence of crystal phosphors

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, v. 25,
no. 3, 1961, 424-425

TEXT: This paper was read at the 9th Conference on Luminescence (Crystal Phosphors) in Kiyev, June 20-25, 1960. The authors report on studies of luminescence of luminophores in the atmosphere of an active gas and under the action of chemically active flames. As is known, the energy released in the recombination of atoms and radicals of gases in molecules on the surface of a crystal phosphor is the source for the excitation of luminescence of the crystal phosphor. It was also found that the luminescence of a phosphor under the action of chemically active flames was a consequence of the recombination of free atoms and radicals on the surface of the crystal phosphor. This kind of luminescence is called candoluminescence. The following experiments are indicated to prove the

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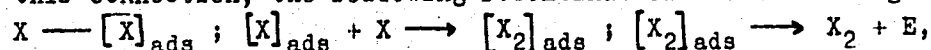
20853

S/048/61/025/003/042/047

B104/B203

Radical recombination luminescence...

radical recombination mechanism of candoluminescence: (1) Determination of the recombination coefficients of some luminophores. (2) Observation of luminescence in the gases of the flame cone. (3) Extinction of luminescence of phosphors in the flame with the aid of an active catalyst. (4) Study of the luminescence of phosphors with free atoms and radicals obtained from electric discharges of the same gases which are present in the flame. Besides, chemical catalysis in semiconductors may also bring a qualitative clarification of the radical recombination luminescence. In this connection, the following recombination mechanism is given:



where X are the atoms adsorbed, X_2 the molecules desorbed, and E is the energy released by the recombination. The atom adsorbed is a localization center for an electron or hole, and is represented as acceptor or donor level in the energy diagram. On the other hand, an electron-hole pair is formed on the surface according to F. F. Vol'kenshteyn, the electron being localized while the hole moves away. The authors assume that in the case of a catalyst luminophore this hole creates the possibility for

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Radical recombination luminescence...

an exothermic ionization of a luminescent center. This leads to a recombination of the electron from the conductivity band with a luminescent center, whereby a luminescent quantum is emitted. If the same electrons are generated in the free band, a molecule is formed and desorbed. In the case of an adsorption of the atom or molecule on an activator atom, the authors suggest direct ionization of the luminescent center, and then a shift of the activator level caused by disturbance of the electric field, thus giving rise to an Antistokes luminescence. The authors thank F. F. Vol'kenshteyn for interest and advice. There are 1 figure and 8 references: 7 Soviet-bloc.

X

Card 3/3

GORBAN', A.N.

Candoluminescence of crystal phosphors and the electronic theory of catalysis in semiconductors. Discussion of V.A.Sokolov's report. Izv. AN SSSR. Ser. fiz. 26 no.4:518-519 Ap '62. (MIRA 15:4)

1. Zaporozhskiy mashinostroitel'nyy institut im. V.Ya.Chularya.
(Quantum theory) (Luminescence) (Semiconductors)

S/195/63/004/001/001/009
E075/E436

AUTHORS: Vol'kenshteyn, F.F., Gorban', A.N., Sokolov, V.A.

TITLE: The processes of recombination of free radicals on the surfaces of semiconductors and their role in luminescence

PERIODICAL: Kinetika i kataliz, v.4, no.1, 1963, 24-34

TEXT: The authors examined the theory of luminescence based on the recombination of radicals at the semiconductor surfaces and investigated the influence of external transverse electrical field on the intensity of candoluminescence. The luminescence was stated to be caused by the combination of ionized atoms with electrons from the solid lattice, the formation of ions being due to chemisorption. Electron exchange resulted between the local levels of chemisorbed atoms and the lattice energy zones. The exchange with the valency zones was thermal in character, whilst the exchange with the conductivity zones resulted from the recombination of radicals. The luminescence was produced only when the recombination occurred between chemisorbed atoms and atoms from the gaseous phase. The intensity of luminescence was determined by the Fermi level on crystal surfaces and given by Card 1/3.

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E075/E436

The processes of recombination ...

$$I = A \left[1 + B \exp \left(\frac{\epsilon - v}{kT} \right) \right]^{-1} \quad (23)$$

$$\begin{cases} A = \alpha N^* P \\ B = 1 + \frac{b}{P} \end{cases} \quad (24)$$

where N^* - maximum number of atoms that can be adsorbed per unit surface, P - partial gas pressure, b - adsorption coefficient depending on temperature T , ϵ - energy level above the Fermi level, to which a surface electron is raised after a recombination act, v - total energy of the lattice electron. At $P = \infty$, $\epsilon_M = v$. The condition favorable for the radical-recombination luminescence is $\epsilon < \epsilon_M$ (26) where

$$\epsilon_M = v - kT \log \left(1 + \frac{b}{P} \right), \quad I_M = \frac{1}{2} \alpha N^* P \quad (25)$$

When the Fermi level is depressed, the intensity of luminescence increases and vice versa. This confirms the conditions given
Card 2/3

The processes of recombination ...

S/195/63/004/001/001/009
E075/E436

by Eq.(26). The experimental results agree qualitatively with the developed theory. There are 7 figures.

ASSOCIATION: Tomskiy politekhnicheskiy institut
Institut fizicheskoy khimii AN SSSR
(Tomsk Polytechnic Institute
Institute of Physical Chemistry AS USSR)

SUBMITTED: September 18, 1961

Card 3/3

L 13102-63

EWI(1)/IWI(m)/EWP(q)/BDS AFFTC/ASD JD

ACCESSION NR: AP3003424

S/0051/63/015/001/0130/0130

AUTHOR: Gorban', A.N.; Kornich, V.O.; Mazhara, V.P. 56

TITLE: Influence of adsorption and desorption on the afterglow of ZnS-CdS:Cu phosphor 27

SOURCE: Optika i spektroskopiya, v.15, no.1, 1963, 130

TOPIC TAGS: adsorption, desorption, phosphorescence, ZnS-CdS-Cu phosphor, ZnS-CdS, Cu phosphor

ABSTRACT: Hydrogen molecules are readily adsorbed in atomic form on many surfaces including those of phosphors; upon desorption, the H atoms recombine to molecules. According to the electronic theory of chemisorption, in the case of "strengthening" of the bond of the gas atom with the adsorbent lattice (for example, adsorption of hydrogen on ZnS-CdS:Cu phosphor) a free electron appears; desorption is accompanied by the appearance of a free hole. Accordingly, from the standpoint of the electronic radical-luminescence mechanism adsorption and desorption should affect the afterglow (phosphorescence) of an excited phosphor. The authors carried out experiments with ZnS-CdS:Cu phosphor in a vacuum vessel. Upon admission of hydrogen the decaying phosphorescence picked up abruptly (small

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L 13109-63

ACCESSION NR: AP3003424

peak in the decay curve); upon rapid evacuation the phosphorescence intensity dropped. Repeat admission of hydrogen resulted in a second brief rise. Thus, the experimental results substantiate the predictions of theory. Orig.art.has: 1 figure.

ASSOCIATION: none

SUBMITTED: 20Dec62

DATE ACQ: 30Jul63

ENCL: 00

SUB CODE: PH

NO REF SOV: 002

OTHER: 00

Card 2/2

L 1115-66 EWT(1)/EWT(m)/EPF(c)/EWP(j)/T/EWA(h) IJP(c)/RPL AT/RM/GS

ACCESSION NR: AT5020492

UR/0000/64/000/000/0457/0462

AUTHORS: Vol'kenshteyn, F. F.; Gorban', A. R.; Sokolov, V. A.

TITLE: On the problem of semiconductor luminescence resulting from the recombination of free atoms and radicals on the surface

SOURCE: Mezhevuzovskaya nauchno-tekhnicheskaya konferentsiya po fizike poluprovodnikov (poverkhnostnyye i kontaktnyye yavleniya). Tomsk, 1962. Poverkhnostnyye i kontaktnyye yavleniya v poluprovodnikakh (Surface and contact phenomena in semiconductors). Tomsk, Izd-vo Tomskogo univ., 1964, 457-462

TOPIC TAGS: semiconducting material, luminescence, free radical, electric field, zinc sulfide, cadmium sulfide, Fermi level

ABSTRACT: A mechanism of radical-recombination luminescence is proposed, and an experiment conducted to confirm aspects of the theory of semiconductor luminescence is described. The work was performed to supplement the authors' earlier research in this area. Tests were run to determine the effect of a field on luminescence. Radicals of hydrogen and air were formed by electric discharge (+5 kV) under a pressure of ~1 mm Hg in a tube about 2 m long and 3 cm in diameter, containing ZnS and CdS-Cu phosphor. The experimental results confirmed qualitatively

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ACCESSION NR: AT5020492

that the intensity of luminescence is dependent upon the location of the Fermi level and confirmed also the theoretically expected effect of an electric field on the adsorptivity of a semiconductor surface. Orig. art. has: 2 diagrams, 2 graphs, 1 table, and 9 formulas.

ASSOCIATION: none

SUBMITTED: 06Oct64

ENCL: 00

SUB CODE: SS

NO REF SOV: 007

OTHER: 002

KC
Card 2/2

L 49265-65 EWT(1) PI-4 IJF(c)

ACCESSION NO: AP 5008536

8/0048/65/020/003/0518/0520

AUTHOR: Gorban', A. N.

TITLE: Some questions concerning radical-luminescence of crystals [Report, 12th Conference on Luminescence held in L'vov 30 Jan-5 Feb 1964]

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 29, no. 3, 1965, 519-520

TOPIC TAGS: luminescence, luminescent crystal, free radical, recombination, energy transfer, electron, hole

ABSTRACT: The author has previously proposed a mechanism, involving the formation of electron-hole pairs, for the transfer of energy released by the recombination of electron-hole pairs to the luminescence centers within it. In the present paper he adduces various data from the literature in support of this mechanism. The authors also discuss the appearance of absorption bands characteristic of the H_2 and H_2^+ radicals. When hydrogen is adsorbed on ZnO , the increase of the after glow intensity of the phosphors by adsorption of hydrogen, the effect of an electric

I. 49265-65

ACCESSION NR: AP000036

field (which displaces the Fermi surface) on the intensity of radical-luminescence,
result of radical-luminescence. It is concluded that the proposed
mechanism is correct. I express my deep gratitude to P. P. Vol'-
for the interest and discussion of the work. The orig.
has no formulas, figures, or tables.

ASSOCIATION: Zaporozhskiy mashinostroitel'nyy institut im. V. YaChubarya
(Machine-Building Institute)

ENCL: 00

SER CODE 02, SS

ACC NR: AP7004960

SOURCE CODE: UR/0048/66/030/009/1424/1426

AUTHOR: Gorban', A.N.; Kornich, V.G.

ORG: Zaporozhsk Machine-Building Institute (Zaporozhskiy mashinostroitel'nyy institut); Dnepropetrovsk State University (Dnepropetrovsk gosudarstvennyy universitet)

TITLE: Concerning the radical-luminescence of zinc oxide /Report, Fourteenth All-Union Conference on Luminescence (Crystal Phosphors) held at Riga, 16-23 Sept. 1965/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 30, no. 9, 1966, 1424-1426

TOPIC TAGS: luminescence, zinc oxide, metal film, catalysis, electric conductivity, hydrogen

ABSTRACT: The authors investigated the radical-luminescence, photoluminescence, electric conductivity and catalytic activity of zinc oxide films obtained by oxidizing zinc films deposited on glass substrates in order to test the radical-luminescence excitation mechanism proposed by one of them (A.N. Gorban'. Izv. AN SSSR, Ser. fiz., 26, 518 (1962); 29, 519 (1965)). The radical-luminescence was excited by hydrogen atoms obtained from a glow discharge in water vapor at 1 mm Hg. The logarithms of both the radical-luminescence and the catalytic activity were found to be linear functions of the reciprocal of the temperature for temperatures between 290 and 380° K, and from the slopes of the corresponding lines it is concluded that the chemisorbed atoms lie 0.45 eV below the Fermi surface. When the film was exposed to the glow discharge its

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ACC NR: AP7004960

conductivity increased with time and reached saturation in about 2 min; the radical-luminescence also increased with time and approached saturation, but it did not begin to rise rapidly until the conductivity was nearly saturated. The radical-luminescence was found not to add to photoluminescence, the photoluminescence intensity being practically the same whether radical-luminescence was also present or not. This behavior is ascribed to photodesorption of atoms and radicals. After a brief discussion it is concluded that the present experimental results confirm the radical-luminescence excitation mechanism proposed in the references cited above. Orig. art. has: 1 formula and 3 figures.

SUB CODE: 20 SUM DATE: none ORIG. REF: 004 OTH REF: 003

Cord 2/2

GORBAN', A. P.

GORBAN', A. P. - "The Transformation of Single-Phase Current into Three-Phase and Conversely Using Static Equipment and a Three-Phase Synchronous Machine of Ordinary Construction." Acad Sci USSR. Power Engineering Institute G. M. Krzhizhanovskiy. Moscow, 1955. (Dissertation for the Degree of Candidate in Technical Sciences)

So: Knizhnaya Letopis' No 3, 1956